

REMARKS

Reconsideration and allowance of the above-referenced application are respectfully requested. Claim 24 is amended, new claim 25 is added, and claims 1-11 and 14-25 are pending in the application.

Applicant respectfully requests a form PTO-892 citing the applied reference U.S. Patent No. 5,353,283 be supplied upon the next communication from the Patent Office.

Claims 1-3, 14, 20, and 22 have been rejected under 35 USC §103 in view of U.S. Patent No. 5,251,205 to Callon in view of U.S. Patent No. 5,353,283 to Tsuchiya. This rejection is respectfully traversed.

Each of the independent claims 1 and 14 specify an arrangement in an integrated network switch for selective layer 3 switching. In particular, each of the independent claims specify two tables that store switching entries, namely a first table (claim 1), referred to in claim 14 as an address table, that is configured for storing switching entries for respective layer 3 network addresses (e.g., IP addresses as specified in claim 1). Each of the independent claims also specify a second table (claim 1), referred to in claim 14 as a subnetwork table, that is configured for storing switching entries for respective subnetwork identifiers. Hence, each of the independent claims specify a first table storing switching entries that include layer 3 network addresses, and a second table configured for storing switching entries for respective prescribed subnetwork identifiers.

Moreover, each of the independent claims specify searching the second table (subnetwork table) for a corresponding switching entry storing the subnetwork identifier (that is within the

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prescribed layer 3 packet information) *based on a determined absence of the corresponding switching entry storing the layer 3 destination address.*

Hence, each of the independent claims specify that the first table is searched for a corresponding switching entry that stores the layer 3 address; if the layer 3 address is determined to be absent from the first table (the address table), the subnetwork table is searched based on the subnetwork identifier.

Hence, an IP frame can still be broadcast to an appropriate destination subnetwork, even though the host identifier within the destination IP address is unknown (see, e.g., page 9, lines 28-32).

These and other features are neither disclosed nor suggested in the applied prior art.

As admitted in the Official Action, Callon neither discloses nor suggests determining a presence of a subnetwork identifier within the prescribed layer 3 packet information, searching a first table for storing IP addresses for a corresponding layer 3 destination address, or selectively searching a second table configured for storing switching entries for respective subnetwork identifiers.

Further, as explained in detail in the Amendment filed May 20, 2004, Callon neither discloses nor suggests the claimed feature of selectively performing layer 3 switching based on the determined presence of the layer 3 packet information, let alone performing the claimed operations in an integrated network switch. Rather, Callon teaches away from the claimed invention by selecting between layer 2 and layer 3 switching *based solely on the layer 2*

Ethernet address (see, e.g., column 51, lines 27-33), and not based on the presence of layer 3 packet information, as specified in claims 1 and 14.

Applicant strenuously traverses the tortured interpretation of Tsuchiya by the Examiner in his attempt to assert that Tsuchiya teaches the claimed invention. In particular, the Examiner asserts on page 2 that:

Tsuchiya discloses searching a *first table* that stores switching entries for respective IP addresses for a corresponding destination address entry (col. 3, *lines 11-14*), and selectively searching a *second table* that stores the switching entries for respective subnetwork identifiers for a corresponding identifier entry (col. 3, *lines 5-10*) based on the absence of a corresponding switching entry storing the destination address.

However, there is no disclosure or suggestion of selectively searching the second table *based on the absence of a corresponding switching entry storing the destination address* (or the determined absence of the corresponding switching entry storing the layer 3 network address in the address table as specified in claim 14), as asserted by the Examiner.

In fact, Tsuchiya teaches a conventional hierarchical routing technique that avoids determining any absence of a destination address entry. In particular, the cited portion of Tsuchiya specifies that a subnet table is first accessed only if: (1) the network portions 31 of the destination address of the received packet and the assigned address of the routing node share the **same network prefix** (see Fig. 4 and column 2, line 46 to col. 3, line 7), and (2) the subnet portions 32 of the destination address of the received packet and the assigned address of the routing node have **a different** subnet prefix. Further, Tsuchiya teaches that the network address table is accessed **only if**: (1) the network portions 31 of the destination address of the received

packet and the assigned address of the routing node share the same network prefix, and the respective subnet portions 32 share the same subnet prefix:

If the network portions of the addresses are the same, the node *then* compares the subnetwork portion 32 of the packet's destination address to the subnetwork portion of the node's address. *If they are different*, the node uses the subnetwork portion of the address to retrieve an entry from another forwarding table which indicates the next node to which the packet must be transferred. *If they are identical*, the node then uses the host portion 33 of the address to retrieve an entry from yet another forwarding table which indicates the next node to which the packet must be transferred.

(Col. 3, lines 4-15).

Hence, Tsuchiya does not even disclose or suggest searching a first table, configured for storing switching entries for respective *Internet protocol (IP) addresses* for a corresponding switching entry storing the *layer 3 destination address*, let alone selectively searching the second table storing prescribed subnetwork identifiers, *based on a determined absence of the corresponding switching entry storing the layer 3 destination address* (or the layer 3 network address and the address table of claim 14).

Rather, Tsuchiya relies on a multistage hierarchical address search, where portions of the destination address are successively analyzed: (1) first the network field 31 is analyzed – if the network field 31 of the destination IP address does not equal the network field of the node's IP address, the network field 31 of the destination IP address is used to access a forwarding table indexed by network prefixes for differing network prefixes; (2) *if the network fields 31 are equal*, the subnetwork field 32 is analyzed – if the subnetwork field 32 of the destination IP address does not equal the subnetwork field of the node's IP address, the subnetwork field 32 of

the destination IP address is used to access a second forwarding table indexed by subnet prefixes for differing subnet prefixes; (3) *if the subnetwork fields 32 are equal*, the host identifier field 33 is then used to access a third forwarding table indexed solely by host identifiers.

Hence, Tsuchiya relies on a multi-stage, hierarchical search using separate and distinct portions of the destination IP address in order to search different address tables having respective indices relative to the separate and distinct portions. Such a computationally expensive procedure necessarily prohibits the implementation of Tsuchiya in a nonblocking layer 2 switch.

The independent claims, however, specifying searching a first table for a corresponding switching entry storing the entire layer 3 address, and not a portion of a layer 3 address, and searching a second table for a matching subnetwork identifier based on the determined absence of the switching entry storing the layer 3 address.

Hence, Tsuchiya neither discloses nor suggests the claimed feature, as asserted by the Examiner.

Moreover, the Official Action fails to provide any evidence that one having ordinary skill in the art would have been motivated to modify Callon in order to include the teachings of Tsuchiya. In particular, Callon is directed to multiple protocol routing (e.g., where TCP/IP and OSI 8473 packets may be routed in the same domain), whereas Tsuchiya actually is concerned with avoiding the use of the destination address for routing a packet, but rather using loose source routing based on a sequence of identifiers within the header of the transmit it packet (see column 3, lines 51-64). Hence, one skilled in the art would not have been motivated to modify Callon to include the teachings of Tsuchiya, as asserted.

The supposed motivation to modify the references is illusory because it is without foundation, inconsistent with the references, and solely derived from the Applicant's specification:

[I]t would have been obvious ... to search for a matching destination address, and if not successful, search for a subnetwork identifier in the invention of Callon in order to round the data to the destination by finding the proper best-matching entry.

As described above, this assertion is entirely without foundation, because Callon explicitly specifies in column 51 that the decision whether to use IP processing should be used is based solely on the Ethernet address, and not the IP address; further, Tsuchiya explicitly discloses using either loose source routing which avoids use of the destination address, or using conventional multistage, hierarchical addressing analysis which does not use the entire IP address, but rather performs multi-stage analyses of different portions of the IP address starting with the network prefix, followed by the subnet prefix, and then only using the host ID.

In fact, Tsuchiya still could encounter the problem of a matching network field 31, a matching subnet field 32, but no host identifier in the local table! This result typically would result in the packet being dropped because the host could not be identified.

Hence, there is no evidence whatsoever of any desirability to access a subnet table based on a determined absence of a layer 3 address within an address table, *except from the claimed invention!* “It is impermissible to use the claimed invention as an instruction manual or ‘template’ to piece together the teachings of the prior art so that the claimed invention is rendered obvious.” In re Fritch, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992).

As apparent from the foregoing, even if one having ordinary skill in the art would have been motivated to combine Callon and Tsuchiya, the resulting hypothetical combination still would neither disclose nor suggest the claimed features, as Tsuchiya explicitly discloses use of either loose source routing or multistage, hierarchical addressing analysis. The Examiner fails to provide any motivation that one skilled in the art should depart from the conventional multistage, hierarchical addressing analysis and modify the hypothetical combination in order to search for a subnet prefix entry **based on a determined absence of the corresponding switching entry storing the layer 3 address.** “The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.” In re Fritch, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992). In re Mills, 16 USPQ2d 1430 (Fed. Cir. 1990). “Teachings of references can be combined only if there is some suggestion or incentive to do so.” In re Fine, 5 USPQ2d 1596,1600 (Fed. Cir. 1988) (quoting ACS Hosp. Sys. v. Montefiore Hosp., 221 USPQ 929, 933 (Fed. Cir. 1984)) (emphasis in original).

For these and other reasons, the rejection of claims 1-3, 14, 20, and 22 should be withdrawn.

Claims 4-6 and 15 stand rejected under §103 in view of Callon, Tsuchiya and USP 5,987,524 to Yoshida. This rejection is respectfully traversed. There is absolutely no disclosure or suggestion whatsoever that the address table 26 is in any way equivalent to the claimed second table that is configured for storing switching entries for respective prescribed subnetwork identifiers. In fact, Yoshida describes that the address table 26 stores nothing other than the

MAC and IP address pairs. There is no disclosure or suggestion whatsoever of the address table 26 storing a switching entry, let alone a subnetwork identifier, as claimed.

Moreover, the rejection is deficient and fails to establish a *prima facie* case of obviousness with respect to claim 15 because it fails to address the features of claim 15, namely the rules queue or the ingress module. Hence, the rejection is deficient because it fails to even address the claimed features. For these and other reasons, the rejection of claims 4-6 and 15 should be withdrawn.

Claims 8-11, 16-19 and 21 are believed allowable in view of the foregoing.

The rejection of claims 23-24 in view of Callon and Kadambi is respectfully traversed, as it does not include Tsuchiya as applied to claims 1 and 14. Hence, a corrected Office Action is requested.

Further, there is no disclosure or suggestion that one skilled in the art would apply the teachings of Kadambi in an attempt to integrate the hypothetical combination of Callon and Tsuchiya into an integrated network switch. As described above, both Callon and Tsuchiya use complex and multi-stage address analysis: there is no evidence one skilled in the art would be able to implement the hypothetical combination as an integrated chip, as asserted.

For these and other reasons, this rejection of claims 23-24 should be withdrawn.

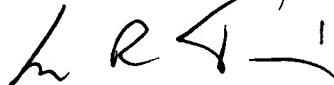
The indication of allowable subject matter in claim 7 is acknowledged with appreciation.

In view of the above, it is believed this application is and condition for allowance, and such a Notice is respectfully solicited.

To the extent necessary, Applicant petitions for an extension of time under 37 C.F.R. 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including any missing or insufficient fees under 37 C.F.R. 1.17(a), to Deposit Account No. 50-0687, under Order No. 95-343, and please credit any excess fees to such deposit account.

Respectfully submitted,

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